

The Relationship Between Self-Determination and Quality of Life for Adults with Mental Retardation

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Abstract: There is growing mindfulness in the fields of disability services, rehabilitation, education and psychology of the need to promote self-determination for individuals with mental retardation and developmental disabilities, based at least partially on the importance of this outcome for people to experience an enhanced quality of life. In the present study data were collected on the quality of life and self-determination of 50 individuals with mental retardation, and data were analyzed, using discriminant function analysis and correlational analyses, to determine the contribution of self-determination to quality of life and examine the relationship between these constructs. People who reported a higher quality of life were also identified as more self-determined. The results support the continued effort to promote self-determination for people with mental retardation and developmental disabilities.

There is growing mindfulness in the fields of disability services, rehabilitation, education and psychology of the need to promote self-determination for individuals with mental retardation and developmental disabilities (Abery, 1994; Brown & Gothelf, 1996; Crimmins & Berroti, 1996; Sands & Wehmeyer, 1996; Wehmeyer & West, 1995). It is important to focus on this topic because: 1) people with disabilities continue to stress the need for more control and choice in their lives to improve their quality of life (Kennedy, 1996; Gagne, 1994; Ward, 1996), 2) people with mental retardation experience limited self-determination and few opportunities to make choices and decisions (Kishi, Teelucksingh, Zollers, Park-Lee, & Meyer, 1988; Stancliffe, 1994; Stancliffe & Wehmeyer, 1995;

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Wehmeyer, Kelchner, & Richards, 1995; Wehmeyer & Metzler, 1995), and 3) there is emerging evidence that self-determination skills are important for more successful adult and educational outcomes for youth with disabilities (Sowers & Powers, 1995; Wehmeyer & Schwartz, 1997).

The increased attention to self-determination has also contributed to the continuing emergence of quality of life as an "overarching principle that is applicable to the betterment of society as a whole" (Schalock, 1996, p. 123), and, specifically, for significant improvements in the lives of people with mental retardation. Schalock stated:

the current paradigm shift in mental retardation and closely related disabilities, with its emphasis on self-determination, inclusion, equity, empowerment, community-based supports and quality outcome has forced service providers to focus on an enhanced quality of life for persons with disabilities (p. 123).

Quality of Life and Self-Determination

Quality of life. Quality of life is a complex construct which, as Schalock (1996) emphasized, can be viewed from multiple perspectives and operationalized in many ways, and which has gained increasing importance as a

principle in human services. Schalock (1996) suggested that quality of life is best viewed as an organizing concept to guide policy and practice to improve the life conditions of all people, and proposed that quality of life is composed of a number of core principles and dimensions. The eight core principles forwarded by Schalock emphasize that quality of life is composed of the same factors and is important for all people, is experienced when a person's basic needs are met, and is enhanced by integration and by enabling individuals to participate in decisions that impact their lives. The core dimensions of quality of life include (a) emotional well-being, (b) interpersonal relations, (c) material well being, (d) personal development, (e) physical well-being, (f) self-determination, (g) social inclusion, and (h) rights.

Self-determination. Self-determination for people with disabilities has its historical roots in the normalization, independent living and disability rights movements of the 1960s and 1970s (Nirje, 1969; Wolfensberger, 1972) and the self-advocacy/self-help movement of the 1980s (Driedger, 1989; Ward, 1996). The term, which historically referred to the right of a nation to self-governance, was appropriated by disability rights advocates and people with disabilities to refer to their right to have control in their lives (Nirje, 1972; Williams, 1989). In this context, self-determination and empowerment are often used interchangeably. Rappaport (1981) identified empowerment as typically associated with a social movement and used to describe actions that enhance the possibilities for people to control their lives. Perhaps the earliest call for self-determination for people with mental retardation came from Nirje (1972), who stated:

One major facet of the normalization principle is to create conditions through which a [handicapped] person experiences the normal respect to which any human being is entitled. Thus the choices, wishes, desires and aspirations of a [handicapped] person have to be taken into consideration as much as possible in actions affecting him. Thus, the road to self-determination is indeed both difficult and all important for a person who is impaired (Nirje, 1972, p. 177).

Unfortunately, for many people with disabil-

ities Nirje's call went largely unheeded. Ward's (1988) statement that "while it is important for all people to acquire these traits [self-determination], it is a critical-and often more difficult-goal for people with disabilities [who] must first shatter the pervasive stereotypes which imply that they cannot, or perhaps should not, practice self-determination" (p. 2) both echoes Nirje's call from nearly 20 years earlier and illustrates how little had changed in the intervening years. However, with the advent of landmark civil rights protections like the Americans with Disabilities Act, the increased visibility of people with disabilities in society, and increased federal funding and mandates, the focus on self-determination has begun to achieve the ends envisioned by Nirje and Ward . . . that people with disabilities have the opportunity to become self-determined.

A series of U.S. Department of Education funded projects (Ward, 1996; Ward & Kohler, 1996) provided impetus to the self-determination movement. While retaining the emphasis on self-determination as empowerment, these research and model program development activities have conceptualized self-determination as an educational or adult outcome by identifying the skills and attitudes or beliefs which must be acquired if one is to become self-determined, as well as turning attention to environmental and attitudinal changes which need to occur to support this outcome. Wehmeyer and colleagues (Wehmeyer, 1992, 1996a; Wehmeyer, Kelchner, & Richards, 1996) developed and empirically validated one such definitional framework, in which self-determination refers to "*acting as the primary causal agent in one's life and making choices and decisions regarding one's quality of life free from undue external influence or interference*" (Wehmeyer, 1996a; p. 22). A causal agent makes or causes things to happen in his or her life (Deci & Ryan, 1985).

In this definitional framework, an act or event is self-determined if the individual's action(s) reflect four *essential characteristics*: (1) the individual acts autonomously; (2) the behaviors are self-regulated; (3) the person initiates and responds to event(s) in a "psychologically empowered" manner; and (4) the person acts in self-realizing manner (Wehmeyer, 1996a). Behavior is:

Autonomous if the person acts according to his or her own preferences, interests and/or abilities, and independently, free from undue external influence or interference;

Self-regulated if people make decisions about what skills to use in a situation, examine the task at hand and their available repertoire, and formulate, enact and evaluate a plan of action, with revisions when necessary;

Psychologically empowered if people act based on the beliefs that they have the capacity to perform behaviors needed to influence outcomes in their environment and, if they perform such behaviors, anticipated outcomes will result;

Self-realized if people use a comprehensive, and reasonably accurate, knowledge of themselves and their strengths and limitations to act in such a manner as to capitalize on this knowledge in a beneficial way (Wehmeyer, 1996a).

Wehmeyer et al. (1996) conducted an empirical validation of this conceptual framework with more than 400 adults with mental retardation in which data were collected on self-determined behavior and each of the four essential characteristics. The sample was divided into two dichotomous groups based on the performance of behaviors generally agreed upon as reflecting self-determination, and analyses indicated that there were significant differences between individuals who engaged in behaviors reflecting self-determination and those who did not on measures of autonomy, self-regulation, psychological empowerment, and self-realization.

The *essential characteristics* that define self-determined behavior emerge through the development and acquisition of multiple, interrelated *component elements*. Wehmeyer (1996a) identified eleven of these component elements that appear particularly important to self-determined behavior. These are: (a) choice-making skills, (b) decision-making skills, (c) problem-solving skills, (d) goal-setting and attainment skills, (e) self-management skills, (f) self-advocacy skills, (g) leadership skills, (h) internal locus of control, (i) positive attributions of efficacy and outcome expectancy, (j) self-awareness and (k) self-knowledge. Each of these elements has a characteristic developmental course or is acquired through specific learning experiences (Doll,

Sands, Wehmeyer, & Palmer, 1996) and it is at this level of the framework that intervention to promote self-determination as an educational outcome occurs.

The intent of this study was to explore the contribution of self-determination to a more positive quality of life and to empirically examine the relationships between self-determination and quality of life.

Method

Participants

Study participants were 50 adults with mental retardation who lived in group homes located in suburban and rural areas in Texas. Participants were recruited by contacting service providers who identified group homes for people with mild mental retardation in which research could be conducted. Group home managers for the identified homes were then contacted, and, after management level permission was obtained, informed consent was obtained from each volunteer participant living in the group home and their guardian, when appropriate. Study participants were compensated for their involvement. The mean age of the sample was 36.22 years ($SD = 10.92$) and participants ranged in age from 20 to 69 years. The mean I. Q. score for the sample was 61 ($SD = 5.13$) ranging from 47 to 71. Forty-eight percent of participants were male ($n = 24$) and 52% were female ($n = 26$). The mean age for males in the study was 37.83 ($SD 9.86$) and the mean I. Q. score was 61.04 ($SD = 4.71$). The average age for females was 34.73 ($SD = 11.8$) and the mean I. Q. score was 61.15 ($SD = 5.58$). Ninety-four percent of the sample was employed in a job outside their home.

Procedures

Research has suggested that the type and size of residences in which people with mental retardation live influences their level of self-determination (Stancliffe & Wehmeyer, 1995; Tossebro, 1995; Wehmeyer, Kelchner, & Richards, 1995). People who live in more restrictive settings experience lower self-determination and have limited opportunities to make choices, even when level of intelligence is taken into account (Stancliffe & Wehmeyer,

1995). As such, any research examining self-determination and quality of life needs to control for the type of living arrangement. To achieve this, we recruited individuals living in comparable environments based on type of residence (group homes), number of residents (4-6), and geographic location. One-on-one interviews were conducted in each group home with study participants using the instruments described subsequently. Demographic data, including age, gender and I. Q. scores, were collected by a records review.

Hypotheses

Schalock (1996) proposed that self-determination is one of eight core dimensions of quality of life and that increased self-determination will lead to an increased quality of life. Wehmeyer and colleagues have also proposed a definitional framework of self-determination in which self-determination impacts an individual's quality of life, again with that relationship being positive and increased self-determination leading to a more positive quality of life. To test this, we hypothesized that self-determination scores should predict group membership where groups are formed based on high versus low quality of life scores. In addition, we hypothesized that self-determination and quality of life scores should be positively correlated and the opportunity to express choices would be related to self-determination and quality of life.

Analyses

We were interested in examining the contributions of self-determination to quality of life for people with mental retardation. As an initial step in this process, we conducted a discriminant function analysis with quality of life as the grouping variable and self-determination, life choices, age and intelligence level as predictor variables. The purpose of discriminant function analysis is to predict group membership on the basis of a set of predictor variables. There are two facets of discriminant analysis, *interpretation* of data and *classification* of data. Klecka (1980) suggested that "a researcher is engaged in *interpretation* when studying the ways in which groups differ—that is, is one able to discriminate between groups on the basis

of some set of characteristics?" (p. 9). The second application, *classification*, involves the process of deriving one or more mathematical equations for the purpose of assigning individuals to groups. We were interested in the first application of discriminant function analysis only.

To create dichotomous groups, we measured individual quality of life and assigned participants to two groups based on a frequency distribution of overall quality of life scores. The low quality of life group consisted of 24 individuals whose scores fell below the 50th percentile in the frequency distribution. The mean quality of life score for the group (see *Instrumentation* for description of scale) was 68.49 ($SD = 7.90$) and scores ranged from 49 to 78. The high quality of life group included 26 participants whose scores were above the 50th percentile. Scores from this group averaged 89.04 ($SD = 6.73$) which ranged from 79 to 106. Discriminant function analysis was conducted based on these groups and predictor variables which included measures of self-determination, life choices, individual age, and I. Q. score.

To ensure that assignment to quality of life groups was not overly influenced by an individual's age or level of intelligence, we conducted two analyses of variance for age and I.Q. score by quality of life group. To further explore the relationship between self-determination and quality of life, we conducted a correlational analysis of all factors using a one-tailed Pearson product-moment procedure, based on the theoretical assumption from several sources that self-determination contributes to increased quality of life. All analyses were conducted using SPSS for Windows (Norusis, 1992).

Instrumentation and Data Collection

Measuring quality of life. Participant quality of life was measured using the *Quality of Life Questionnaire (QOL.Q;* Schalock & Keith, 1993). The *QOL.Q* is a widely used, 40-item rating scale designed to measure overall quality of life for individuals with mental retardation. The scale is administered in an interview format and yields data regarding overall quality of life, consisting of scores from four subscales; satisfaction, competence/productivity,

empowerment/independence, and social belonging. Schalock and Keith (1993) documented the scale's structural validity, using factor analysis, and reported adequate internal (Coefficient Alpha = .90), interrater ($r = .83$) and test-retest ($r = .87$) reliability as well as evidence of construct and concurrent validity.

Measuring self-determination. Self-determination was measured using an adult-version of *The Arc's Self-Determination Scale* (Wehmeyer, 1996b; Wehmeyer & Kelchner, 1995). This instrument is a 72-item self-report scale that provides data on overall self-determination by measuring individual performance in the four essential characteristics of self-determined actions identified by Wehmeyer, Kelchner, and Richards (1996). Section 1 measures autonomy, including the individual's independence and the degree to which he or she acts on the basis of personal beliefs, values, interests and abilities, using a likert-type format. The second section measures self-regulation. This section is composed of two subdomains; interpersonal cognitive problem-solving, and goal-setting and task performance. In the first, respondents are presented a series of stories in which a beginning and describing a problem and an outcome, respectively, is provided. Respondents are asked to identify the actions that best resolve the problem. Answers are scored based on the degree to which the solution achieved the outcome. Positive scores reflect more effective social problem-solving abilities. In the second subdomain, respondents are asked to identify goals for the future in three areas (where they live, where they work and what transportation they use). If respondents identify a goal, they are asked to list 1 to 4 steps they should take to achieve this goal. Positive scores reflect more effective goal-oriented behaviors.

The third section of the scale is an indicator of psychological empowerment. Psychological empowerment consists of the various dimensions of perceived control (Zimmerman, 1990), including the cognitive (personal efficacy), personality (locus of control), and motivational domains of perceived control. People who are self-determined take action based on the beliefs that (a) they have the capacity to perform behaviors needed to influence outcomes in their environment and (b) if they

perform such behaviors, anticipated outcomes will result. Respondents choose from items measuring psychological empowerment using a forced-choice method. High scores reflect positive perceptions of control and efficacy. The final section of *The Arc's Self-Determination Scale* measures self-realization. Self-determined people are self-realizing in that they use a comprehensive, and reasonably accurate, knowledge of themselves and their strengths and limitations to act in such a manner as to capitalize on this knowledge in a beneficial way. Self-knowledge forms through experience with and interpretation of one's environment and is influenced by evaluations of others, reinforcements, and attributions of one's own behavior (Wehmeyer, 1996a). Respondents reply to a series of statements reflecting low or high self-realization by indicating that they agree or disagree with items. High scores reflect high levels of self-realization.

There are a total of 148 points available on the scale and higher scores reflect higher self-determination. *The Arc's Self-Determination Scale* was developed and normed with 500 adolescents with and without mental retardation. Information about this process is available in the procedural guidelines for the scale (Wehmeyer, 1995a). Concurrent criterion-related validity was established by showing relationships between *The Arc's Self-Determination Scale* and conceptually related measures, including multiple measures of locus of control, academic achievement attributions and self-efficacy. The scale had adequate construct validity, including factorial validity established by repeated factor analyses, and discriminative validity, as well as adequate internal consistency (Chronbach alpha = .90). The adult version of this scale is identical to the student-version, with selected wording changes in questions to reflect adult outcomes (e.g., replace "school" with "work").

The amount of choice available to participants was measured by the *Life Choices Survey (LCS)* (Kishi et al., 1988). The *LCS* has ten items measuring major life decisions and daily choices, and was developed to evaluate choices available to adults with mental retardation living in group homes. Respondents answer on a scale indicating how often they have the chance to make choices. The instrument is

TABLE 1

Descriptive Statistics for Quality of Life and Self-Determination Variables

Variable	Mean	SD	Min	Max
Self-Determination Scale Total	100.82	19.68	48	136
Life Choices Survey Score	31.69	4.97	19	40
Quality of Life-Q Total	79.18	12.65	49	106
Empowerment/Independence	18.67	2.65	12	25
Competence/Productivity	21.32	4.89	12	30
Social Belonging/Community Integration	19.67	4.01	12	28
Satisfaction	19.54	4.86	9	28

completed in an interview format and yields a total score reflecting overall choice. Stancliffe and Wehmeyer (1995) used the *LCS* to measure choice availability for individuals with mental retardation, and Stancliffe (1994) used the *LCS* to compare staff and resident perceptions of choice availability.

Results

Table 1 provides descriptive statistics for the group as a whole on self-determination, life choices and quality of life total and subscale scores. There were no significant differences between quality of life groups in I. Q. scores or 'age (see Table 2) and the discriminant function analysis was conducted as described previously. Univariate statistics generated by the discriminant function analysis procedure indicated significant differences between self-determination scores based on quality of life group membership. Table 2 provides the means and standard deviations for predictor variables by quality of life group status. Table 3 provides univariate F-ratios and p-values for each independent variable, as well as Wilks' Lambda for these variables.

On the basis of all predictor variables, a single discriminant function was calculated with Chi-square = 5.14 ($p = .273$) and omnibus Wilks' Lambda = .89. Examination of the canonical discriminant functions evaluated at group means (or group centroids) showed that this discriminant function distinguished the high quality of life group, (function = .32) from the low quality of life group, (function = -.36), accounting for all between-group variability.

Finally, total self-determination scores were significantly correlated with total quality of life scores ($r = .25, p = .04$) and scores from the Life Choices Survey ($r = .25, p = .04$). Life Choices Survey scores were not, however, significantly correlated with total quality of life scores ($r = .21, p = .07$). Table 4 provides correlations between relevant scores.

Discussion

These results suggest that self-determination contributes to a more positive quality of life for people with mental retardation. Before exploring these results further, there are several

TABLE 2

Means and SDs for Predictor Variables by Quality of Life Group

Variable	High Quality of Life		Low Quality of Life	
	Mean	SD	Mean	SD
Life Choices Survey	32.42	4.83	30.86	5.10
The Arc's Self-Determination Scale	106.03	17.46	94.21	20.73
I.Q. Score	61.04	6.36	61.16	3.8
Age	36.61	8.79	35.79	13.02

TABLE 3

Analysis of Discriminating Variables and Canonical Discriminant Functions

Variable	<i>F</i>	<i>Significance</i>	<i>Wilks' Lambda</i>
Life Choices Survey	1.19	.279	.97517
The Arc's Self-Determination Scale	4.7129	.0350	.90886
I.Q. Score	.0211	.8851	.99955
Age	.1984	.6581	.99580

caveats which need to be considered. First, we were concerned that the evaluation of the impact of self-determination on quality of life might be unduly confounded by the living situation of individuals with mental retardation. Stancliffe and Wehmeyer (1995) found that level of self-determination differed based on where a person lived (e.g., large congregate setting, group home, family home, independently) even when level of intelligence was entered as a covariate. Schalock and Keith (1993) found a similar situation for quality of life scores. In both cases, individual self-determination or quality of life was higher for individuals in more integrated settings. People who live in group settings, including group homes, experience fewer opportunities to make choices about their lives (Stancliffe & Wehmeyer, 1995) and, consequently, to express self-determination.

Our solution was to control for the living setting by recruiting participants who lived in similar settings . . . 4 to 6 person group homes. While this enabled us to control for living situation, it may introduce some problems with generalizing results to all people with mental retardation. Schalock and Keith (1993) found that people who lived in supervised settings had lower quality of life scores than peers who lived in more independent settings. The mean scores from the QOL-Q in this study are very similar to those reported in the QOL-Q manual for people living in a supervised setting and consistently lower than those reported for people living in independent and semi-independent living situations. As such, we were examining the impact of self-determination on quality of life with people whose quality of life was, most probably, limited by environmental circumstances. Subsequent research should determine if these findings do generalize to a wider range of living arrangements, but particularly for life in integrated settings. In addition, the participants were limited to individuals with mild mental retardation and generalization to people with more significant mental retardation cannot be assumed. On the other hand, there is no theoretical reason to believe that increased self-determination will not improve one's quality of life independent of where one lives, if one has some opportunity to exercise this self-determination, or one's level of disability. Given this, we believe that findings

TABLE 4

Correlations Between Self-Determination, Life Choices and Quality of Life Scores

Variable	<i>SD Tot</i>	<i>LCS</i>	<i>QOL-Q</i>	<i>Emp/Int</i>	<i>Comp/Prod</i>	<i>Comm</i>	
						<i>Int</i>	<i>Sat</i>
SD Tot		.25*	.25*	.05	.20	.36*	.18
LCS	-	-	.21	.09	.26*	.22	.05

* $p < .05$.

SD Tot = Total self-determination score.

LCS = Life Choices Survey score.

QOL-Q = Total quality of life score.

Emp/Int = QOL-Q Empowerment/Independence subscale.

Comp/Prod = QOL-Q Competence/Productivity subscale.

Comm Int = QOL-Q Social Belonging/Community Integration subscale.

Sat = QOL-Q Satisfaction subscale.

from this sample do have implications for people with mental retardation more generally.

A second area of concern was the measurement overlap between self-determination and quality of life. As Schalock has indicated, self-determination contributes to quality of life, and as such there is bound to be measurement overlap between these constructs. In the present investigation, quality of life was measured using an instrument which measured individual empowerment and independence, competence and productivity, social belonging and community integration and satisfaction. Self-determination was measured using a instrument that reflects individual autonomy, self-regulation, psychological empowerment, and self-realization. While there is some conceptual overlap, the correlational analysis suggests that these were distinct constructs being measured and not simply two measures of the same construct. As Table 4 indicates, there was a significant correlation between self-determination and quality of life. However, this correlation was low and the relationship between total self-determination and subscale scores was limited. Additionally, the fact that Life Choices Survey scores were significantly correlated with the self-determination scores but not quality of life scores suggests that the two measures differed somewhat in their focus. The Arc's Self-Determination Scale measures several aspects of self-determination which would not be present in the QOL-Q scores, including interpersonal cognitive problem solving, goal setting and task performance, self-efficacy, outcome expectancy, locus of control and self-awareness/self-understanding.

The reconceptualization of quality of life as an organizing concept and self-determination as a core quality of life dimension should serve to better distinguish between self-determination and quality of life. Schalock (1996) proposed that exemplary indicators of self-determination, as a core quality of life dimension, would include autonomy, choices, decisions, personal control, self-direction and personal goals/values . . . all areas measured in the present study. Schalock suggests that, to overcome some of the problems historically associated with measuring quality of life, it will be necessary to use multiple methods to capture the core quality of life dimensions.

To more accurately evaluate the contribution of self-determination to quality of life, future research should focus on the measurement of the multiple core dimensions, examine the relationship between self-determination and other core dimensions, and use these measurements to create a more complete picture of the quality of life of individuals with mental retardation.

Given these caveats, the present study provides preliminary evidence that self-determination does contribute to an individual's positive quality of life as hypothesized. This is not surprising given the link between self-determination and more positive adult outcomes which, in turn, contribute to an enhanced quality of life. Wehmeyer and Schwartz (1997) measured the self-determination of youth with disabilities in their final year of school and then conducted a follow-up survey to examine how well these youth were doing one-year after leaving school. Throughout the data there was a consistent trend characterized by self-determined youth doing better than their peers at the follow-up measurement time. Members of the high self-determination group were more likely to have expressed a preference to live outside the family home, have a savings or checking account and be employed for pay. Students who earned the most had significantly higher self-determination scores and individual subdomains of self-determination contributed significantly to the students' wage per hour.

It was surprising that the scores from the life choices survey did not correlate significantly with the total quality of life scores. However, these scores did correlate with total self-determination scores. The *Life Choices Survey* is an indication of the opportunity that people with disabilities experience to make choices and such opportunities are critical for self-determination. We believe that, in this analysis and with the correlational analysis in general, correlations between scores were attenuated because participants in the study had relatively low quality of life scores. These scores were consistent, however, with QOL-Q scores reported for other people living in group homes. Mean self-determination scores were roughly comparable with scores from previous research (Wehmeyer, 1995a), while mean LCS scores were slightly lower (31.99) than that previously reported for adults with mental re-

tardation (33.99, $N = 392$; Stancliffe & Wehmeyer, 1995). The general conclusion is that the environment in which participants lived inherently limited choice opportunities and, thus, quality of life. As such, the study also supports the need to provide people with mental retardation the opportunity to live in settings which support choice and self-determination.

These findings confirm what people with disabilities have emphasized and researchers and practitioners have presumed . . . that people who can take greater control in their lives are more likely to have a higher quality of life. Connie Martinez, a member of People First Capital Group in Sacramento, California stated:

The first thing for the professionals and the parents to understand is that we can have a good quality of life if we have control over our own lives and if we have the help we need to keep that control and independence in our own lives (Martinez, 1990).

Findings from this study should provide impetus to the field to continue to promote self-determination. While there remains an ongoing need for additional research into self-determination and program development to achieve this outcome, professionals and parents can provide opportunities for control and choice without waiting for more data or new materials. The environments in which many people with mental retardation live, learn, and work continue to limit choices, constrain options and be controlled by or for the convenience of others. For example, assistive technology, which could overcome limitations introduced by cognitive impairments, continues to be underutilized by people with mental retardation (Wehmeyer, 1995b). The first steps toward improving the quality of life for people with mental retardation would be to address these issues.

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